COGNITIVE SPACE CONCERNING HABITUAL THOUGHT AND PRACTICE TOWARD ANIMALS AMONG THE CENTRAL SAN (GUI AND GANA): DEICTIC/INDIRECT COGNITION AND PROSPECTIVE/RETROSPECTIVE INTENTION

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ABSTRACT Three fields in which the Central San (Gui and Gana) think and act with regard to animals are investigated; 1) interpretations on peculiar features of game animals, 2) ethno-ornithology, and 3) food taboo and avoidance. The hunters interpret peculiar behavior or appearance of animals in terms of some influential process that acts beyond mechanical causality. They also retrospectively connect a strange phenomenon with a human death. Birdsongs are sometimes believed to imply a prediction concerning the outcome of hunting. A number of folk-tales explain the origin of salient habits and morphology of specific bird species. Privileged enjoyment of some kinds of meat by elder people is the principal factor that organizes the food taboo. Most women consistently avoid the meat of carnivorous animals, while a wide variation is found in the men's accounts of what carnivores to avoid. The Gui and Gana's knowledge, belief, and practice concerning animals are schematized by the theoretical model of cognitive space, which is divided by two intersecting coordinates; deictic vs. indirect cognition and prospective vs. retrospective intention. The beliefs organizing the meat taboo and avoidance are based on embodied experience, which is different from deictic identification, and no more amenable to indirect cognition.

Key Words: The San (Bushmen); Hunting; Ethno-zoology; Food taboo; Cognition

INTRODUCTION

It may seem quite reasonable to assume that any hunting-gathering people has developed a body of elaborate knowledge about animals because such knowledge is indispensable for the hunters to find, follow, catch, and kill game. Simply speaking, this kind of knowledge is of practical, or adaptive, value for human foragers to efficiently exploit the natural environment. However, practical necessity can explain only a part of the "folk-knowledge" about animals. Whenever an ethnographer tries to systematically investigate "knowledge" about animals among a foraging society, he will soon encounter extremely diversified types of discourse, ranging from accurate observations on morphological or behavioral features to folk-tales with animal characters, or even to apparently far-fetched interpretations of animal habits. For example, Blurton Jones and Konner, examining the !Kung knowledge of animal behavior, remark;

> Whether the !Kung interest in animal behavior is of ultimate practical value in every case seems to us, finally, beside the point. The point is that evolution has produced in them an inquisitive turn of mind which leads them to explore problems and accumulate knowledge *beyond what is most immediately necessary* for them to know. This turn of mind evidently proved more adaptive than a severely pragmatic approach, because evolution retained it. (Blurton Jones & Konner, 1976: 342, emphasis added)

Faced with "knowledge beyond immediate necessity," one might be tempted to divide people's "knowledge" into two mutually exclusive categories; empirical vs. symbolic knowledge, rational vs. irrational beliefs, or common-sense vs. ideology, etc. Such dichotomy is apt to simplify the subtle and complex relationship between everyday interaction with animals and the cognition of them which underlies every type of verbally stated "knowledge," "thought," and "belief."

This paper aims at giving an insight into the diverse forms and patterns in which the Central San (Gui and Gana) think and act with regard to animals. I shall look at three different fields; (1) observations and interpretations on peculiar morphological or behavioral features of game animals, (2) ethno-ornithology, and (3) avoidance of eating meat or placing a different taboo on it.

In order to integrate these diverse fields into a whole picture, I would like to propose a simple model. This model schematizes the cognitive space that covers the Gui and Gana's knowledge, belief, and practice concerning animals. Two intersecting coordinates are assumed, namely the distinction between deictic and indirect cognition, and the one between prospective and retrospective intention.

Imagine a hunter walking in the bush. He incessantly pays attention to the surrounding world. He might find new footprints of an animal, he knows what it is, when it passed this place, and in which direction it went on. Based on such information, he will predict whether he can catch up with it or not. Such a reading of "indexical signs" is based on "deictic cognition," namely any kind of cognition that is produced by the direct perception of objects in the surrounding world. At the same time, his decision to track the animal is backed up by "prospective intention," namely an intention which is projected at a future goal or expectancy. Additionally, particular behavioral features of animals, e.g., birdsongs, are sometimes believed to imply a prediction concerning the outcome of hunting, which in turn may modify the hunter's behavior.

Besides the fact that birdsong is often interpreted as such a kind of "message," there is another significance for ethno-ornithological inquiry. The Gui and Gana have a number of folk-tales that explain the "origin" of peculiar habits and the morphology of specific bird species. It is a matter of course that the bird characters and their acts in such mythical explanations are not amenable to direct perception. They are "representations" which are produced by specific means of a semiotic system; i. e. language in this case. As a contrast to "deictic cognition," I shall use the term "indirect cognition" to indicate cognition which is oriented towards features existing only in representation, and which acts only through some semiotic device [(1)]. When some distinct behavior, sounds, or the shape of a bird reminds a hunter of a relevant folk-tale or myth, he is projecting a "retrospective intention"

onto the "past" occasion, namely an occasion which is believed to have occurred in mythical time.

"Retrospective intention" can also be projected onto a recent occasion in a specific situation. Some strange feature of an animal's behavior or morphology might only be retrospectively interpreted as an "omen" or a "hunch," when those observing this strange feature are informed of someone's death afterwards.

Although the theoretical model proposed here was inspired by D. Sperber's "epidemiology of representation," the distinction between deictic and indirect cognition is different from the distinctions between public and mental representations or between intuitive and reflexive beliefs (Sperber, 1996). Synchronically, deictic cognition refers to an activity of cognizing objects which are directly perceived *now-and-here*, while indirect cognition covers a complementary set of what is constituted with the help of mediums of perception. Thus, all mental representations are possible objects of indirect cognition, while all public representations constitute only a subset of all possible objects of deictic cognition. Diachronically, a series of similar processes of deictic cognition in a specific domain result into some intuitive belief, while only a few instances of indirect cognition are stored in memory to form reflexive beliefs.

Food taboo and avoidance occupy an especial status in this cognitive space. Among the Gui and Gana, the members of specific age-sex classes avoid various kinds of meat or are even strictly forbidden to eat them. On the other hand, they also use various devices to circumvent these taboos and avoidance rules. The harmful effects of ingesting some kinds of meat are associated with the belief in peculiar extrasensory perception. In sum, the beliefs organizing the practices concerning meat avoidance and taboo are based on *embodied* experience, which is different from deictic identification. Embodied experience is no more amenable to indirect cognition because it is immediately experienced by each person and cannot easily be transformed into any representation.

I have to confess that the rather complicated composition of this article reflects the shift of my interests during a span of many years of field work. The point of departure of this study can be dated back to 1992, when a Gui woman, about 50 years old, died after several months of gradual debility. I had been acquainted with her for 10 years. According to the diagnosis of a traditional "doctor," her sickness was primarily caused by the absorption of a leopard's smell. This incident prompted me to start a systematic investigation into the avoidance of animal meat. However, the more I got to know about the belief and thought in regard to animals, the more confident I became that food avoidance was only part of a wide range of cognition, thought, and practice towards animals. The ultimate goal of this article is to integrate the diversified analyses into a theoretical model of the Gui/ Gana's "cognitive space," which emerges from their daily interactions with animals and, at the same time, patterns their *habitus* concerning the animal world.

SUBJECT GROUP AND METHODOLOGY

The Gui and the closely related dialect group of the Gana have received special attention as hunter-gatherers having adapted to the harsh dry environment of the Central Kalahari. Eco-anthropological studies have been carried out by G. Silberbauer (1981) and J. Tanaka (1980) on the people living in the Xade (Kade) [(2)] area, located in the mid western part of the Central Kalahari Game Reserve (CKGR). In 1979, the Botswana government started to make the people in this area settle around the !Koi!kom borehole (Tanaka, 1987, 1991). Since 1982, I have been studying face-to-face interactions and everyday conversation in several Gui camps at the Xade Settlement (Sugawara, 1990, 1996). From May to September 1997, the government carried out its relocation program, which had been prepared since 1986, and all the residents of the Xade settlement, including Gui, Gana, and Bakgalagadi people, migrated to *kx'ôẽ-sa-kene* (New Xade), a new settlement outside the CKGR about 70 km away from Xade.

Extensive research on food avoidance was carried out among both Gui and Gana in 1992. Analyses of everyday conversation also provided an invaluable clue to a deeper understanding of beliefs underlying food taboos and avoidance. In 1994 and 1996, I collected life-history narratives of eight senior men (seven Gui and one Gana). Ethno-zoological knowledge, beliefs, observations, and interpretations on animal behavior were extracted from these narratives by analysis. Ethno-ornithological knowledge and a myth including bird characters were intensively investigated in 1997 [(3)].

THE GUI/ GANA FOLK-TAXONOMY OF ANIMALS

The Gui/ Gana folk-taxonomy of animals was first described by Tanaka (1996). His work, integrating his data and insights on the Gui/ Gana view of animals, which he accumulated through prolonged research, establishes the ground on which further ethno-zoological and folklore studies can be developed. Furthermore, by presenting representative folk-tales and myths, Tanaka delineates the symbolic world of the Gui and Gana, which is closely connected with their minute knowledge of animal habits. He elucidates a very practical classification of animals, i.e., "eat-things (*kx'ooxo*)" (namely animals to be eaten), "bite-things (*paaxo*)" (namely harmful animals), and "useless things (*goõwahaxo*)." These three categories are far from being discrete. For instance, as soon as a gemsbok, usually classified as a typical member of *kx'ooxo*, attacks a hunter with its sharp horns, it becomes a very harmful animal and is regarded as *paaxo*. The extension of each category is also flexible. The *paaxo* category includes not only snakes and poisonous arthropods, but also poisonous plants. I also noticed that even a fierce man was metaphorically designated as "*paaxo*" in a specific context of everyday conversation.

In addition to these primary categories, Tanaka identified category terms such as "bird" and "snake." Through my research, I found other terms that designate lower level categories. According to Berlin and other ethno-scientists, folk-taxonomies among many cultures are organized by a general hierarchical structure of five or

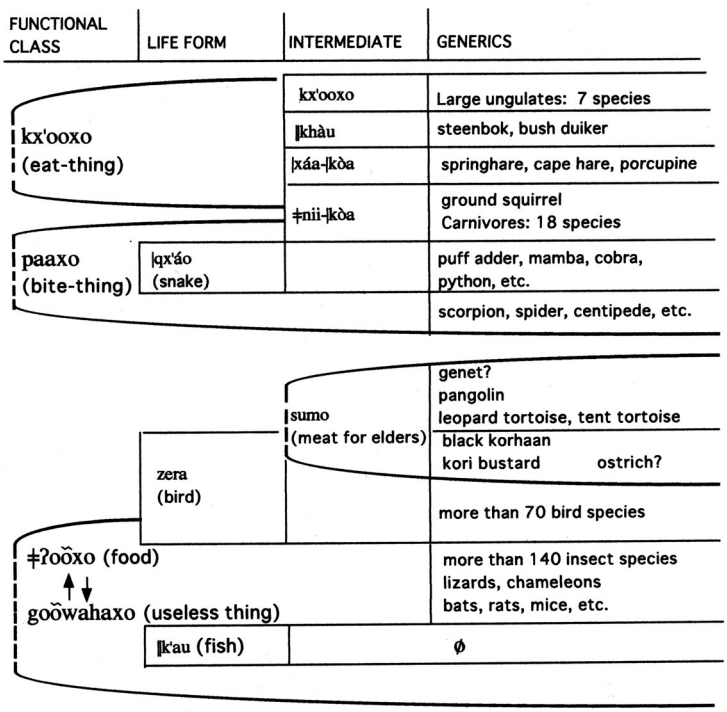

Fig. 1. Schematic representation of the Gui/ Gana's folk-taxonomy.

six levels (Berlin et al., 1973). The Gui/ Gana folk-taxonomy only incompletely corresponds to such a theory (Fig. 1). A term equivalent to a "unique beginner," i. e. the most inclusive category such as "living things" or "creature" (or semi-technically "animals") (D'Andrade, 1995) does not exist. Although the three categories described above (*kx'ooxo*, *paaxo*, and *goõwahaxo*) might be at the highest level, they are quite functional categories, which cross-cut heterogeneous classes of objects. Three life form terms are identified; "bird" (*zera*), "snake" (*qx'áo*), and "fish" (*k'au*). However, the last term denotes actually an empty category that includes no terms at the lower levels. At the intermediate level, four problematic terms that refer to mammalian species can be distinguished. In a narrow sense the term *kx'ooxo* (eat-thing) refers only to seven species of big game; giraffe, eland, gemsbok, kudu, wildebeest, red hartebeest, and springbok. The aardvark is designated as "another *kx'ooxo*" (*kx'ooxo- óbi*). Although the term *khàu* denotes "animals to be caught with a snare," this category actually includes only two members; steenbok and bush duiker. The warthog is designated as "senior *khàu*" (*khàu- gôo-bi*). Small or medium sized rodents, such as cape hare, springhare, and porcupine, are designated as *xáa- kòa* ("meat"+diminutive suffix).

All carnivores except the ground squirrel are designated as *nii- kòa* ("beast" + diminutive suffix). The term *nii* is used, often in a joking relation, to abuse

a lustful man, in a similar way the English term "beast" (and the Japanese term *kedamono*) are used metaphorically. However, an informant claimed that this term was a loan word from the Nharo and synonymous with *paaxo* (bite-thing). Even if this is true, the significance of the category called *nii- kòa* should not be underestimated. Deducing from the everyday use of language, the prototypical members of the *paaxo* category are undoubtedly lion, leopard, and poisonous snakes, namely possible man-killers. In contrast to this, such small and medium-sized carnivores as mongoose, wildcat, and the bat-eared fox, whose fat meat is most people's favorite, are rarely called *paaxo*. Thus, while *paaxo* is a very functional category, the term *nii- kòa* might be applied to a more discrete category that is grounded on some common morphological, as well as habitual, features of most of its members. The category *nii- kòa* also deserves special attention as the main object of female food avoidance, as will be examined further below.

Finally, at this intermediate level, another functional and cross-cutting category, *sumo*, is found. According to a collaborating linguist, this term originally means "delicacy," and refers not only to a class of animal species, but also to some kind of food cooked in a particular way, e.g., boiled meat of big game, pounded and mixed with the marrow of its hind legs (Nakagawa personal com.). Only seniors and small children are allowed to eat *sumo*, which is a necessary condition for its classification. This category thus forms an essential part of the food taboo.

Through an extended period of research on the Gui and Gana, a great number of vernacular animal names have been collected by Silberbauer (1981), Tanaka (1980), Nonaka (1996) (insects), and myself (birds). The vernacular names of mammals are listed in Table 1. Those of birds shall be presented in the fifth section. The vernacular names of both mammals and birds are primary lexemes, so that they can be defined as "generics"(Berlin et al., 1973). Most of them are not further divided into "specifics" which are labelled by secondary lexemes. More than 90 percent of these generics correspond to biological species. This fact coincides with the theory that "the generics are the basic core of the folk taxonomy" (D'Andrade, 1995: 94), or, in other words, the generic level is the basic level at which the objects are perceived as a configurational gestalt (Rosch & Lloyd, 1978).

In sum, the Gui/ Gana folk taxonomy of animals is best characterized by both functional and cross-cutting classes and quite minute distinctions among animal kinds at the generic level, which mostly correspond to the biological distinction of species.

ATTENTION TOWARD ANIMALS AND INTERPRETATIONS OF THEIR BEHAVIOR

Blurton Jones and Konner (1976) pointed out that !Kung have an advanced ability to observe and assemble facts about animal behavior. This is also true for the Gui and Gana. I was often impressed with their narratives, which minutely described habits and behavior of such species as ratel and brown hyena, which were generally disliked. The men became most enthusiastic when representing a dramatic experience of big game hunting, showing a vivid depiction of the behavior

Table 1. Mammals commonly observed in Xade area.

Order	English name	Scientific name	Vernacular n.	Category
Artiodactyla	Gemsbok	*Oryx gazzella*	xôo	kx'ooxo
	Wildebeest	*Connochaetes taurinus*	kee	do.
	Red hartebeest	*Alcelaphus caama*	xãma	do.
	Eland	*Taurotragus oryx*	gyûu	do.
	Greater kudu	*Tragelaphus strepsiceros*	gyûa	do.
	Giraffe	*Giraffa camelopardalis*	!nãbe	do.
	Springbok	*Antidorcas marsupialis*	qai	do.
	Bush duiker	*Sylvicapra grimmia*	!nòa	khàu
	Steenbok	*Raphicerus campestris*	!gáẽ	do.
	Warthog	*Phacochoerus aethiopicus*	xóu	khàu- gôo-bi
Rodentia	Cape hare	*Lepus capensis*	! ôã	xáa- kòa
	Spring hare	*Pedetes capensis*	gŏo	do.
	African porcupine	*Hystrix africaeaustralis*	!nóe	do.
	Ground squirrel	*Xerus inauris*	náu	nii- kòa
	Rats and mice		none	goõwahaxo
Carnivora	Lion	*Panthera leo*	xám	nii- kòa
	Leopard	*Panthera pardus*	! ôe	do.
	Cheetah	*Acinonyx jubatus*	!qãõ	do.
	Serval cat	*Felis serval*	geerahu	do.
	Caracal	*Felis caracal*	keme	do.
	African wildcat	*Felis libyca*	!qôru	do.
	Common genet	*Genetta genetta*	tsamba	sumo?
	Slender mongoose	*Galerella sanguinea*	gŏari	nii- kòa
	Dwarf mongoose	*Helogale parvula*	ŏe	do.
	Spotted hyena	*Crocuta crocuta*	kău	do.
	Brown hyena	*Hyaena brunnea*	nŭutsa	do.
	Aardwolf	*Proteles cristatus*	kìi	do.
	Lycaon	*Lycaon pictus*	qaru	do.
	Black-backed jackal	*Canis mesomelas*	gébi	do.
	Cape fox	*Vulpes chama*	sure	do.
	Bat-eared fox	*Otocyon megalotis*	aa	do.
	Ratel	*Mellivora capensis*	!gârosi	do.
	Zorilla	*Ictonyx striatus*	gyàã	do.
Tubulidentata	Aardbark	*Orycteropus afer*	!gôo	kx'ooxo- óbi
Pholidota	Pangolin	*Phataginus temmincki*	náme	sumo
Chiroptera	Bats		kaakama-nakugyaano	goõwahaxo

"Category" in the right column except *goõwahaxo* means "intermediate category" at the level between "life forms" and "generics."

of the larger ungulates being caught. The fearful experience of encountering with lions or leopards was also quite an exciting topic. I cannot afford to describe the whole range of Gui/ Gana knowledge about animals. In this section, I shall mainly focus on so-called 'irrational' beliefs and interpretations about animal behavior or appearance.

I. Hunting Practice and Beliefs Concerning Big Game

When I questioned the Gui/ Gana men as to what kind of animals they would eat or avoid eating, I also asked them how many times they had ever killed big ungulates (*kx'ooxo*). For each species, the average number of animals which a man had ever killed was calculated [(4)]. According to this number, the six species of ungulate can be ranked into four levels; i) gemsbok (2.42), ii) wildebeest (1.89) and hartebeest (1.86), iii) eland (1.60) and kudu (1.52), and iv) giraffe (1.23). These four levels can also be distinguished by comparing the distribution patterns of the number of men along the estimated number of animals killed.

Silberbauer (1981) and Tanaka (1980) respectively estimated the numbers of animals which had been killed by the male residents of a camp of standard size during one year. The linear order of the six kinds of game Silberbauer estimated according to the hunting frequency is consistent with the order ascertained above, while levels ii) and iii) are inverse in Tanaka's estimation. At any rate, the above estimation based on the hunters' memory seems to reflect the actual frequency with which big ungulates had been hunted. It is evident that the Gui and Gana had hunted gemsboks most frequently and giraffes most infrequently.

It is not surprising that the hunters possess a profound knowledge about the habits of the big game, which is continuously increased by deictic cognition of their traces and behavior. On the other hand, the hunters also believe in a specific causality for the behavior of the big game. I shall cite only two examples below.

The first example concerns the influence of the moon on the behavior of large antelopes. The Gui language has an interesting intransitive verb, *xāo*, which denotes a specific mode of interaction between mother and infant animals. It means 'be left behind by the mother and sleep.' The mother gemsbok sometimes leaves its infant under a shrub in order to graze around at a long distance. For a hunter with his dogs, this moment is a good opportunity to catch the infant because the mother gemsbok usually protects her offspring by counterattacking the dogs with its sharp horns so fiercely that they are sometimes killed. The waning moon in the morning sky is called *! âne*. It is believed that infant gemsboks will never 'be left' (*xāo*) by their mother as long as the *! âne* remains in the sky. Therefore, the hunter will rest in the shade of a tree to wait for the moon to disappear. On the other hand, the *! âne* is also believed to affect the behavior of elands. When a soft wind blows from the direction of the moon, an eland is said to be so pleased that it will go on toward the moon, hopping again and again. A hunter can easily catch up with the eland in such a condition.

The second example concerns the effects of a kind of truffle, *kuutse* (*Terfezia* sp.), on big game wounded by poisoned arrows. This delicious truffle, one of 11 "principal food items," grows during a short period at around the end of the rainy season (Tanaka, 1980: 62). It is believed to counteract the effects of the poisoned arrow. According to Tanaka (1980: 32), "[u]ntil he [the hunter who has hit an animal; supplement by the present author] confirms the death of the animal, he can take no food or drink other than water, for the San believe that if the archer eats food the wounded animal will regain its health and escape." Above all, the hunter should not eat *kuutse*, because this will weaken the poison within the body of the wounded

animal. For the same reason, an experienced hunter always keeps a piece of dried *kuutse* in his hunting bag as an antidote.

It might be feasible to test, by means of ethological observation or chemical analysis, the empirical validity of these beliefs, though I am unwilling to do so. The only point to be emphasized is that the Gui/ Gana believe in some kind of influential process or, to say more intuitively, force that acts beyond physical distance and/or mechanical causality. In this sense, these beliefs share, to some degree, a common semantic field with the beliefs organized by the verb *!năre* (be effected by/be drunk/ anticipate/sense), as will be analyzed in the sixth section.

II. Strangeness of Animals: Provoking a Laugh or Telling an Omen

Unusual behavior of animals sometimes provokes a hearty laugh among those who observe it. My closest Gui informant (a young adult man), TB, told me an impressive episode. In his early childhood he once accompanied his father who went out hunting springhare. Till then he had never seen a springhare run, so when he saw it jumping on its hind legs, he shook with laughter. TB's father told a similar story, narrating memories of his youth;

> I once found a *khàu* (steenbok or duiker) caught in the snare. They usually do not behave very violently when I kill them. But that day, it kicked and struggled, and even attempted to thrust at me with its tiny horns. I said, "What are you doing? You are curiously struggling, aren't you?" I laughed, laughed, laughed, and laughed. "Ah! How curious it looks!" Laughing, laughing, and laughing, I struck it dead.

On the other hand, strangeness in animal behavior and appearance may also be interpreted in a more peculiar way. In the same narrative this old man told another interesting episode, experienced in his middle age;

> Together with my elder brother, my son, and two female dogs, I went hunting and slept in the bush far away from our camp. It rained the next morning. We found tracks of two aardvarks on wet sand. Following up the tracks, we reached their burrow. When we kept digging, a young ran out. We caught up with it and beat it to death. Its back was bald around the hipbone. The fur was roundly cut, as if it was patched. Because Khuritshaa [the name of a man] had remained there [in another camp] and had died, it was bald; it was an omen (*ziu*) for Khuritshaa's death. We said, "Ah! How strange it looks!..." [succeeding passages omitted]
>
> Some other day, I was alone, following the track of a pangolin. Then there were the traces of a leopard trying to catch it. The pangolin rolled up, so that the leopard had trouble with it and gave up. After the leopard had left, it loosed, stood up, started walking in spite of the daylight, entered the huge shade of *k'ôa* -tree (*Acacia mellifera*), and rolled up again. I followed it and raised my face to see it, covering its face at the root of the tree. It rested on its backbone, screening the sun with its tail like a spoon, into which it poked its head and eyes. Because of Xawatsoo's [the name of a man] misfortune (*qx'ôã*). If you find a pangolin outside [the burrow], it is due to a misfortune. [Usually] you cannot find it outside. You find it only in burrows. If you find a pangolin outside, it is an omen (*ziu*).

The term *qx'ôã* in the above narrative, tentatively translated as "misfortune" means more concretely "dreaming a dead." After a funeral, the kinsmen of the dead have to receive a curing ritual to free them from *qx'ôã* (or to "expel the misfortune") by chewing the root of a particular plant. The term *ziu*, translated as "omen," is typically used in phrases such as "announcing a *ziu* to me" (*ziu-sa ci-xàe kǎe*), in which the subject of the verb "announce" (*kǎe*) is rarely specified. For example, I visit a camp far away from my home. During the stay, without any significant reason, I quarrel a lot with the residents. Coming back home, I get to know that one of my kinsmen died during my absence. At this moment I understand why I quarreled so much there — "Announcing a *ziu* to me..."

However, the term *ziu* is not only applied to the interpretation of an extraordinary experience in a social context, as the examples cited further up showed. When a hunter perceives a conspicuous strangeness in an animal's behavior or appearance, he might only realize the "true" meaning of this uncanny matter, when he is informed of someone's death afterwards. In order to make the above point more explicit, I will cite more incidents which hunters interpreted as *ziu*;

(a) When a hunter kills an eland, it will usually fall on its side without roaring. If it falls on its face and roars, this incident will very probably turn out to be a *ziu*. (This is a typical response of hunters to my question, "What is *ziu*?")

(b) In 1994, TB (my closest Gui informant) and three Gana men went checking their snares and caught a fat male duiker. They 'roasted it in hot ashes' (*kóõ*) near the snares and ate some. But its meat tasted so bad that they threw it away. After coming back home, word came in that a truck had overturned on the road from Xade to Ghanzi, throwing out a number of people from the bed of the truck.(5) Three were killed and many were wounded. One of the dead was TB's close kinsman (MFyBS).

(c) In 1996, TB set many snares and went to check them every day, but he caught nothing. At that time his mother suffered from a serious sickness. One day he found a male duiker caught in a snare and killed it. Although it was so slender that it looked like a young, its horns were quite long like those of a mature male. Coming home, he got to know that his mother had been taken to the hospital in Ghanzi. Three days later her death was announced by radio to the office of the Remote Area Development Programme at !Koi!kom.

(d) In the same year, another Gui informant (a young adult man), KA, worked at road construction and stayed in a camp for employees, about 20 km away from !Koi!kom. He set snares around this camp. One day, when checking the snares, he noticed the footprints of an aardvark. He was astonished to find that this aardvark had dug the sand with its 'hands' and covered three snares with it. Afterwards news came in that the husband of a woman working in that camp had died of illness at !Koi!kom.

These cases exemplify that the incidents to be interpreted as *ziu* range over quite diversified phenomena which man will encounter during hunting. Applying the terms 'figure' and 'background' of gestalt psychology, a hunter, who is informed of someone's death, recalls his recent memory and finds some incident standing out as a 'figure' against a 'background' of ordinary phenomena. It is to be emphasized that this 'figure' can only be perceived if the hunters have a vast and detailed knowledge

of the ordinary phenomena of the natural world, which they have accumulated through lasting observation.

The informants claimed without hesitation that no *ziu* would be announced if one were present at one's kinsman's deathbed. This claim throws light on another important point. Only when a person's death is informed of indirectly, one is prompted to interpret some incident as a *ziu* . In other words, the term *ziu* connotes a particular way of thinking, which *retrospectively* connects a strange phenomenon in the social or natural world with a human death as the object of indirect cognition.

THE WORLD OF BIRDS: AN ETHNO-ORNITHOLOGICAL INVESTIGATION

Birds as a "life form," especially small birds, are characterized by distinctive features such as salience, flying ability, and little value for food. Supposedly, the attention towards birds may be regarded as a particular mental resource whose value lies beyond practical interest.

I. Lexeme Analysis of Vernacular Names

I identified 76 biological species of bird and collected 72 vernacular names (generics), 68 of which each correspond to one species (Table 2). Half of the vernacular names (50.0%) were composed of analyzable or explicable lexemes that included onomatopoeia. Nearly 20 percent of these lexemes were productive, i. e. including the class term for bird (*zera*). In this aspect the composition of vernacular bird names is quite different from that of mammalian names, in which no analyzable lexeme was found. About 40 percent of the analyzable lexemes denote the bird song or the way in which the bird sings, while about 45 percent denote the color, morphology, and habit of the bird (Table 3, 4).

The analyzable lexemes therefore reflect the Gui/ Gana's observation of birds. Some examples of these indigenous observations embedded in lexemes will be given below. The productive lexemes are such as;

(1) The cattle egret (*piri-zera* [goat-bird]) is always seen near goats. There is also a different perception, namely that this bird pecks the bodies of goats in order to sip their blood.

(2) The ashy tit (*kee-zera* [wildebeest-bird]) is black like the wildebeest.

(3) The chat flycatcher (*xóno-zera* [coldness-bird]) trembles, as if it shivers in the cold.

(4) The brubru (*bóorí-zera* [talk-bird]) is a small kind of shrike. Two birds exchange chirps serially, as if two men exchanged a long greeting.

The examples of non-productive but analyzable lexemes are as follows;

(5a) [6] Spotted dikkop (*!kòẽ!kòẽ*): This name is the reduplication of the intransitive verb *!kòẽ*, which means 'swell.' Although the legs of this bird are very thin, its "knees" are swollen.

Table 2. Birds commonly observed in Xade area.

Family	English name	Scientific name	Vernacular n.
ARDEIDAE	Cattle egret	*Bubulus ibis*	pirizera
CIONIIDAE	Abdim's stork	*Ciconia abdimii*	guu ò
CHARADRIIDAE	Crowned plover	*Vanellus coronatus*	dăi
BURHINDAE	Sppoted dikkop	*Burhinus capensis*	!khòē!khòē
OTIDIDAE	Redcrested korhaan	*Eupodotis ruficrinusta*	!găi
	Black korhaan	*E. afra*	kàa
	Kori bustard	*Ardeotis kori*	geu
PHASIANIDAE	Orange River Francolin	*Francolinus lavaillantoides*	k'éna
	Redbilled francolin	*F. adspersus*	!kóbo
NUMIDIDAE	Guineafowl	*Numida meleagris*	xane
STRUTHIONIDAE	Ostrich	*Struthio camelus*	gĕro
SAGITTARIIDAE	Secretarybird	*Sagittarius serpentarius*	gẵo (geram o kàm)
ACCIPITRIDAE	Lappetfaced vulture	*Torgos tracheliotus*	kx'áē (1)
	Whitebacked vulture	*Gyps africanus*	kx'áē (2)
	Martial eagle	*Polemaetus bellicosus*	xóno
	Bateleur	*Terathopius ecaudatus*	!kôe!kòbe
	Black kite	*Milvus migrans*	tsŭukútsùba
	Pale chanting goshawk	*Melierax canorus*	!gúutsam nãe
	Steppe buzzard	*Buteo buteo vulpinus*	qama
	Gabar goshawk	*Melierax gabar*	qhônogá
PTEROCLIDIDAE	Spotted sandgrouse	*Pterocles burchelli*	m̄mcà gòli (gõno)
COLUMBIDAE	Cape turtle dove	*Streptopelia capicola*	khebi
	Namaqua dove	*Oena capensis*	záu
TYTONIDAE	Barn owl	*Tyto alba*	!goã!gona
STRIGIDAE	Whitefaced owl	*Otus leucotis*	ēberì
	Pearlspotted owl	*Glaucidium perlatum*	nóam gòro
	Giant eagle owl	*Bubo lacteus*	òam
	Spotted eagle owl	*B. africanus*	kòõ
CAPRIMULGIDAE	Rufouscheeked nightjar	*Caprimulugus rufigena*	năi
HIRUNDINIDAE	European swallow	*Hirundo rustica*	nâa nèra
MEROPIDAE	Swallow-tailed bea-eater	*Merops hirundineus*	gyûuqăm
CORACIIDAE	Lilacbreasted roller	*Coracias caudata*	kâbaxàmkúzãẽ
	Purple roller	*C. naevia*	nhoã
PHOENICULIDAE	Scimitarbilled woodhoopoe	*Rhinopomastus cyanomelas*	?
BUCEROTIDAE	Yellowbilled hornbill	*Tockus flavirostris*	ôba
	Grey hornbill	*T. nasutus*	!kabe
CAPITONIDAE	Pied barbet	*Lybius leucomelas*	péēzera
PICIDAE	Bearded woodpecker	*Thripias namaquus*	!k'ôro õ
ALAUDIDAE	Fawncoloured lark	*Mirafra africanoides*	!gamané
	Clapper lark	*M. apiata*	!koap!koapcŭi

(6) European swallow (*nâa nèra*): Composed of *nâa* [watch] + *nèra* [?]. This bird always keeps away from man and watches the ground from the sky, looking for water.

(7) Swallow-tailed bee-eater (*gyûuqăm*): A compound of *gyûu* [eland] + *qăm* [gallbladder]. The color of this bird is yellow-green like the eland's gallbladder.

(8) Titbabbler (*chúicŭakx'am*): A compound of *chúi* [wound] + *cŭakx'am* [anus]. The undermost part of its belly is brick-red, as if this bird had a wound around its anus.

(9) Shafttailed whydah (*gămkúri*): Composed of *găm* [string of meat] + kúri [?]. The male bird has a very long tail like a string of meat.

(10) Goldenbreasted bunting (*koalekx'ōa*) : A compound of *koale* [a kind of edible plant (*Ledebouria* sp.)] + *kx'ōa* [raw]. The color of this bird is bright yellow like an

Table 2 (cont.)

Family	English name	Scientific name	Vernacular n.
DICRURIDAE	Forktailed drongo	*Dicrurus adsimilis*	nháu àna
CORVIDAE	Pied crow	*Corvus albus*	!kãã (ŏra)
	Black crow	*C. capensis*	òara
PYCNONOTIDAE	Redeyed bulbul	*Pycnonotus nigricans*	háicàkŭle
PARIDAE	Ashy tit	*Parus cinerascens*	keezera
TIMALIIDAE	Pied babbler	*Turdoides bicolor*	kx âakx âba
TURDIDAE	Ground scrape thrush	*Turdus litsitsirupa*	!nãbe nà uru
	Anteating chat	*Myrmecocichla formicivora*	chui
	Capped wheatear	*Oenanthe pileata*	coboroco (cie kãã)
	Kalahari robin	*Erythropygia paena*	gènané
SYLVIIDAE	Titbabbler	*Parisoma subcaeruleum*	chúicŭakx am
	Blackchested prinia	*Prinia flavicans*	qàẽ qàẽ
	Yellowbellied eremomela	*Eremomela icteropygialis*	cêrakigyîna
	Tinkling cisticola	*Cisticola rufilata*	k'ŏan k'ŏan
	Desert cisticola	*C. aridula*	gĕbirí
MUSCICAPIDAE	Marico flycatcher	*Bradornis mariquensis*	tsãma
	Chat flycatcher	*Bradornis infuscatus*	xónozera
LANIIDAE	Longtailed shrike	*Corvinella melanoleuca*	gãã gătsao
	Whitecrowned shrike	*Eurocephalus anguitimens*	kããkãã
	Brubru	*Nilaus afer*	bóorízera
	Crimson boubou	*Laniarius antrococcineus*	!khau gãe (gâberíkx'ãa)
	Treestreaked tchagra	*Tchagra australis*	!nŏro
STURNIDAE	Cape glossy starling	*Lamprotornis nitens*	gŏorí
	Burchell's glossy starling	*L. australis*	zŭbu
NECTARINIIDAE	Marico sunbird	*Nectarinia mariquensis*	kâatàmpõo
PLOCEIDAE	Greyheaded sparrow	*Passer griseus*	berezera (nănzera (1))
	Great sparrow	*Passer motitensi*	nănzera (2)
	Scalyfeathered finch	*Sporopipes squamifrons*	ts óẽ (xôozera)
	Whitebrowed sparrow-weaver	*Plocepasser mahali*	qx'âa gŏari
	Masked weaver (Those living in nests)	*Ploceus velatus*	tsx'áutsx'àna (kònets'à)
VIDUIDAE	Shafttailed whydah	*Vidua regia*	gămkúri
ESTRILDIDAE	Violeteared waxbill	*Uraeginthus granatinus*	nhări
	Redheaded finch	*Amadina erythrocephala*	gẽnaté (1)
	Melba finch	*Pytilia melba*	gẽnate (2)
FRINGILLIDAE	Yellow canary	*Serinus flaviventris*	nănzera (3)
EMBERIZIDAE	Goldenbreasted bunting	*Emberiza flaviventris*	kôalekx ōa

Names in parentheses indicate alternative vernacular names. Vernacular names numbered from (1) to (3) correspond to 2 or 3 different biological species.

uncooked tube of *koale*, a kind of grass which constitutes "minor food" for the Gui and Gana (Tanaka, 1980: 56-58).

II. Variety in the Descriptions and Discourses about Birds

I collected various descriptions and discourses (including songs) on the subject of birds, which can be classified into the following five types:

(A) Etymology or descriptions of the bird's morphology and habits
(B) Songs and dances addressed to them
(C) Messages or analogies drawn from their behavior or morphology

Table 3. Number of vernacular names (VN) and of bird species

	N. of VN	N. of species
1 VN denotes 1 species	69	69
(alternative VN)	(7)	-
1 VN denotes 2 species	3	6
VN unknown	-	1
Total	72(+7)	76

Table 4. Lexeme analysis of analyzable vernacular bird names

	Type of lexeme				
features	onomatopoeia	productive	non-productive	Total	(%)
song	10	2	3	15	(41.7)
color/shape	-	1	9	10	(27.8)
habit	-	3	3	6	(16.7)
unknown	-	1	4	5	(13.9)
Total	10	7	19	36	(100.0)
[%]	[27.8]	[19.4]	[52.8]		[100.0]

Figures in the round and square parentheses indicate the percentages in the column and the row, respectively.

(D) Messages or analogies drawn from their songs

(E) Folk-tales:

(E1) Tales explaining the origins of their morphology or habits

(E2) Myths including not only birds but divine or human characters

First, I shall focus on the relatively simple types (A) and (B). There are several interesting observations on bird habits;

(5b) A spotted dikkop stands close to a man and lowers its head as to peep into his loincloth. The man will cry, “Ah! This bird is insulting me.”

(11) When frightened by someone, a secretarybird runs shaking its crest and tail. This manner of behavior is described as “frisking like a young girl,” as it reminds a man of a girl running with her breasts swaying.

(12) The giant eagle owl is believed to cheat springhare. Foraging at night, the springhare emits pant grunts. This owl emits similar grunts to let the springhare believe it is in company. When it hops towards the place where the sound was emitted, it is caught by the sharp claws of the owl.

The following are derivatives of bird names;

(13) The song of a desert cisticola (*gĕbirí*) sounds like girls' clapping and whistling. Therefore, a very short skirt is called *gĕbirí*-skirt. [When a man sees a girl wearing such a skirt, his sexual desire is stimulated, assuming that it is very easy to have intercourse with her.]

(14a) Yellow-billed hornbills have a peculiar nesting habit. The female sits on her eggs in the hollow of a tree, while her male partner closes the opening of the hollow with mud so as to leave only a thin crevice uncovered, through which he feeds the female. In a similar way, after giving birth to a baby, a woman will rest in her hut for several weeks in order to grow fat. This way of resting with her baby is denoted by the intransitive verb *ôbe*, which is a derivative of the name of this bird, *ôba*.

When encountering certain birds, people address a song to them or even dance for them;

(15) "Kite, you speared my hip bone" (*tsŭukútsùba, ci gano !kháe*). It is imagined that a dung beetle sings this song because a kite catches dung beetles almost every day.

(16) "Nightjar, you are weak. Nightjar, you fly up!" (*sa năi subu, sa ga pii*). It is said that a female nightjar sitting on her eggs on the ground will not fly away, even if a man sings and dances around the nest.

(17) "Charcoal of *!gõõ* firewood has popped into your back! Charcoal of *kâra* firewood has popped into your back!" (*!gõõ ée nōam tsa núro oa kāã, kâra ée nōam tsa núro oa kāã*). Both *!gõõ* and *kâra* are names of *Acacia* trees (*Acacia leudeitzii* and *A. erioloba*). This song is addressed to the lilacbreasted roller which has a brown back looking like a scald. Furthermore, it often emits a hoarse voice, with its shoulders swaying as if it were in pain.

All of the above examples evidently show that not only the semantic aspects of language concerning birds such as vernacular names and derivatives, but even the aesthetic usage of language such as songs, are based both on accurate observation and on a lively sense of humor.

III. Birds' Messages

There are only three kinds of discourses (including four species) that can be classified as type (C);

(18) If a namaqua dove flies down near a hut, a visitor will come soon. A brubru brings a similar message.

(19) A crimson boubou flying to your camp tells you that a steenbok has been caught in your snare. The bright red on the belly of this bird is likened to the meat of the game.

(20) When a man scrapes a skin, a marico flycatcher often comes near to pick up the shavings. This behavior is likened to looking for an awl lost in the sand. The man tells the bird, "Look for the awl and give it to me. Last night I lost it there."

The discourses classified as type (D), including seven species, can be summarized as follows;

(21) The song of a crowned plover is likened to the noise of filing a knife. It is interpreted as telling a man, "A game animal is caught in your snare. File your knife and cut the animal with it!"

(22) The whitefaced owl is believed to ride on the horns of an eland. When a hunter hears the grunt of this owl, he goes in its direction to find an eland.

(23) The noisy singing of a group of pied babblers is likened to the noise of scraping the skin of a red hartebeest.

(24) The song of the marico sunbird is regarded as an omen, telling that someone has just died or will die soon. In other words, this bird announces a *ziu*.

(25) Red-eyed bulbuls are very fond of *none* berries (*Boscia albitrunca*). Their song is likened to the phrase, "Call me, and let me vomit [the *none* berries into a cup]" (*ca kŕi da qhara ò*).

(26) The vernacular name of the scaly-feathered finch is onomatopoeic of the song of this species, but it is also called "gemsbok bird" (*xôo-zera*). When a hunter approaches a gemsbok, this bird cries to warn the gemsbok of the danger. The latter looks back, sees the hunter, and flees from him. On the other hand, this bird also warns a man when a lion is approaching.

(27a) If a redcrested korhaan sings and flies near a man who is setting a snare, no game will be caught in this snare. This jinx is believed in so firmly that the man will abandon his work and go back home. The song of this bird also tells that vultures are flying high in the sky. Hearing its song, a man looks up and sees the vultures. Going in their direction, he may find the carcass of a game animal.

These discourses interpreting the presence, behavior, and songs of birds as some message are of critical importance for understanding the Gui/ Gana habitual thought. As far as such an interpretation is the constituent part of their knowledge about the world, a bird is not only the object of careful observation, but also an agent which can modify the prospective intention of man. With regard to this point, I would like to scrutinize case (27a) more closely.

When I asked the informants, "How can a *!găi* (redcrested korhaan) foretell the failure of a snare?," they firmly declared, "A *!găi* does not foretell. Man *knows* that neither steenbok nor duiker will enter a snare at a place where a *!găi* has flown." If we take this declaration at face value, it might be superfluous or ethnocentric to designate such a way of thinking as "jinx" or even "interpretation." For the Gui and Gana, the linkage between the flying of a redcrested korhaan and the failure to catch game animals is beyond argument. Using a semiotic term, the former is regarded as an "indexical sign" of the latter. This indexicality is no less self-evident than is a dark cloud for rain.

It is readily expected that scientific thought will cast doubt on the validity of the above proposition. Furthermore, emphasizing the self-evidence of a belief for a certain people, is always accompanied by the temptation to retire into epistemological relativism. I will reconsider this problem in the final section.

IV. Folk-tales Explaining the Origins of Bird Habits or Their Morphology

Among the discourses of type (E), type (E2) includes long myths, whose analysis is beyond the capacity of this article. Thus I shall focus on type (E1) discourses, which are assumed to be most important from the viewpoint of ethno-ornithology. Only one myth which has an important implication for the whole inquiry, will be cited at the end of this section.

As was described in case (27a) above, it is believed that the redcrested korhaan (*!gǎi*) tells about the existence of vultures. The reason for this is explained in the following way;

(27b) A long time ago, *!gǎi* used to lay eggs on trees. Vultures found them easily and ate them up. A ground agama lizard advised a *!gǎi* to lay her eggs into the sand and cover them with grass. Following this advice, she found no eggs were eaten. She thanked the agama. Still now, both of them no sooner catch the sight of a vulture than they utter a cry of warning.

There are many other interesting tales that vividly depict distinct features of the habits or morphology of respective bird species and explain their origins in such socioeconomic contexts as the lending and borrowing of tools, extra-marital sexual relationships, the sharing of meat, and magical curing;

(28a) Two girls, a chicken and a guineafowl, borrowed an awl from a pale chanting goshawk, but they lost it. As the goshawk demanded that they give it back, they looked for it desperately, scratching the sand with their feet, but in vain. The goshawk got so angry that he killed the guineafowl to eat her. Therefore nowadays both chicken and guineafowl quickly hide themselves under a bush as soon as they see a goshawk in the sky.

(29) A couple of grey hornbill (*!kabe*) was living together with a couple of yellowbilled hornbill (*ôba*). Whenever the *!kabe* husband went out, the *ôba* husband visited the *!kabe* wife and persistently asked her to start a love relationship (*záãku*) with him. At last she lost all her patience with him and pulled and wrenched his mouth with a vengeance. For this reason, nowadays *ôba* have quite a long bill and red skin around their eyes, which were bloodshot.

(30a) [The cape glossy starling is a beautiful bird with metallic green-black feathers and golden eyes, while the blackchested prinia is a tiny bird.] Two men, Starling and Prinia, went hunting with several other men. They killed an eland [or a wildebeest in a different version] and shared the meat among themselves. As Prinia was elder and respected by the other men, he received both the marrow of the hind leg bones and the large intestine. Only Starling complained about this decision, saying, "Why is he so great? His legs are as thin as grass, but you all believe that he is great only because his throat is black." Although Prinia heard this, he kept silent. They carried the meat. On the way to camp, when they rested, Starling complained again and again. Abruptly Prinia stood up and silently throttled Starling. If the other men had not stopped Prinia, Starling would have died. Starling was so terrified that he did not complain any more. For this reason, the eyes of the cape glossy starling are still engorged with blood nowadays.

(30b) As was pointed out in the above case, a blackchested prinia has a black pattern on its "throat." This is said to be a trace of 'magical curing' (*kíi*). A tinkling cisticola looked at this and asked, "What is it?" Prinia answered, "I rubbed life medicine into the wound. This medicine makes me immortal." Cisticola wanted the same remedy. Prinia warned him, saying, "No, you might die if I cut your throat." But Cisticola so persistently asked Prinia to 'cure' (*kíi*) him, that Prinia at last agreed. He took a knife and cut Cisticola's throat. It was too painful for Cisticola to endure. He cried " *é, é, é, é, é, ...*" and turned his face away, his lifted arms protruding forward. A tinkling cisticola still behaves this way today.

These examples demonstrate that the keen observations on distinctive characteristics of some birds are systematically overlapping with social experience in Gui/ Gana everyday life. Borrowing and lending of tools as well as sharing meat are indispensable practices for the people to support their communal life through mutual aid. Extra-marital sexual relationships called *záãku* are regarded as positive by the Gui/ Gana. One of the factors supporting this feeling is economic mutualism, which is most distinctly embodied by the "ideal type" of *záãku*, namely mate-swapping. Finally, the orientation toward 'magical curing' finds its most dramatic expression in the trance dance (designated by the same term, *kíi*), into which enthusiasm and aesthetic feeling are condensed.

However, each of these aspects of social life has its negative side. Losing a tool which was borrowed from another person may cause serious trouble [7]. Distribution of meat is a delicate task that may bring about dissatisfaction or resentment of some party. The *záãku* relationships sometimes provoke conflicts in which not only the concerned parties but also their kin will be involved. Finally, the experts in magical power, some of whom are descendants of the Kgalagadi agro-pastoralists, are usually respected by the people, but are also sometimes envied or even suspected to be sorcerers.

Thus, in these tales the cognition of bird habits and morphology is closely interwoven with the Gui/ Gana insight into the ambivalent nature of social life. In this sense, as argued by M. Biesele, these tales "can be understood as effective, ongoing mechanisms both for educating the young and for sharing information and creating consensus about attitudes..." (Biesele, 1993: 60), and therefore can counteract the destructive potential of socioeconomic conflict.

However, the above analysis does not imply that the primary motivation to explain the origin of bird habits or morphology is to allegorize the social world. On the contrary, the following tale depicts that an interest in the "natural" surroundings per se has animated the mythical imagination;

(27c) A long time ago, a red-crested korhaan (*!gǎi*), talking with a black korhaan (*kàa*), boasted of his skill. "I am good at falling down head first like a stone." The latter did not believe it. So the *!gǎi* gave a performance, but, immediately before hitting the ground, he turned round to land on his feet. But the *kàa* did not see this trick. So, encouraged by the *!gǎi*, he attempted to do the same performance, but crushed his head on the ground. Thus the head of the *kàa* is still large today.

A popular field guide to Southern African birds notes the behavior of the red-crested korhaan as follows: "In summer males fly steeply upwards to c. 30 m and then tumble as though shot" (Newman, 1991: 132). This note shows that this Western ornithologist, just like the Gui/ Gana people, identified the same behavior as a conspicuous feature of that species. The simple fact that humans of different cultures can share observations of this kind entails that, if ethnozoological knowledge is endowed with some degree of certainty, it is ultimately grounded on deictic cognition.

Finally, I shall cite another myth in order to further elaborate the above point;

(28b) Two women, a black korhaan (*kàa*) and a guineafowl (*xane*), and their husbands were living together in a camp. The husbands went hunting and were killed by two "man-eaters" (mythical existence). They skinned the victims and respectively wore these skins to disguise themselves as *kàa*'s and *xane*'s husbands. The man-eaters went to the camp and each sat beside one of the wives. One wife, *xane*, noticed that this man was not her husband, while the other wife, *kàa*, didn't notice and ate the meat of her husband the man-eater gave her. At night, *xane* pretended to take her children to the toilet, calling *kàa* to go together. But *kàa* came leaving her children in her hut. Being told of the true character of their seeming husbands, *kàa* was so upset that she ran back to her hut to recover her children. But the man-eater shot her with an arrow, and she died. All of her children were also killed. *xane* and her children took refuge in a camp where kin people of both *xane* and *kàa* were living. Listening to this news, *kàa*'s mother cried and sang, "Alas, as I'm stupid, she is stupid! *tŏra , tŏra , tŏra , tŏra , ...*" On the other hand *xane*'s aunt [or grandmother?] boasted and sang, "Oh, as I'm smart, she is smart! *tá tarara, tá tarara, tá tarara, ...*"

The last phrases in the above cited songs are sounds imitating the loud calls of the black korhaan and the guineafowl. A few days after I heard this myth, we Japanese researchers heard the noisy call of a bird in the evening. My colleagues could not identify the bird. However, I imitated the call and immediately noticed that it sounded very boastful. I claimed that it had to be a guineafowl. Thus the knowledge about this myth surely advanced my own ability to cognize a distinctive feature standing out from the "natural" surroundings.

THINGS NOT TO BE EATEN: FOOD AVOIDANCE AND TABOO

Food taboo is a difficult topic in an eco-anthropological study of foraging societies that focuses on the mechanisms of human adaptation to the natural environment (Kuchikura, 1987, Ichikawa, 1987). In a broader scope, the problem of food taboo has been regarded as a touchstone for the effectiveness of opposing theories such as structuralism and materialism (Douglas, 1966, Harris, 1980). This section does not intend to construct a comprehensive theory that can solve the riddle of hunter-gatherers' food taboos in general. Examining the Gui/ Gana society, it primarily aims to elucidate the differentiations in avoiding meat of specific animals according to age and sex.

I questioned 43 men and 53 women as to whether they would eat any of the 48 animal species I had on my list (34 mammal species, 7 birds, 6 reptiles, and one amphibian), if they obtained them at that point in time. It has to be admitted that this method of inquiry may reflect mere opinions rather than the actual behavior of the people. In spite of this restriction, it is valid to outline the essential characteristics of the people's eating habits, especially the variation according to age and sex.

I. Basic Concepts for Food Taboo and Avoidance among the Gui and Gana

In his principal monograph, Tanaka outlines the food taboos of the Gui and Gana;

> The Central Kalahari San have many taboos about eating animals. In general, the taboos are determined by sex, age, and marital status, but there are also many individual taboos. It is believed that one who eats a taboo animal will meet with sickness or disaster and die. (Tanaka, 1980: 68)

In the following paragraphs, he points out several important characteristics of the taboo. Animals that eat people or human corpses are generally tabooed. Unmarried young people as well as children of over 10 years refrain from eating steenbok and springhare. No one but infants and the elderly eat small tortoise. Food taboos are especially noticeable during puberty and pregnancy. Tanaka claims that there is no possible ecological interpretation of the reasons behind age-determined taboos, but he also suggests that the taboos imposed on healthy young people might effect a preferential distribution of the meat of those animals to infants and the elderly, that are most frequently caught but are too small to feed a great number of people.

The results of my research will confirm Tanaka's account summarized above, but will also modify it in several points. Before analyzing the data, I would like to give a brief comment on vernacular words concerning food taboo and avoidance. The Gui language contains the transitive verb *!nāã* which means 'avoid' or 'do not eat (drink, smoke) something.' For example, "I do not smoke tobacco" means "*cire sui-sa !nanaha*" (I + tobacco-[female suffix, objective case] + have avoided [complete form]). However, this verb always implies that its object will cause a disease if the subject person were to eat (drink, etc.) it. If the derivative morpheme '*-xo*' follows a verb, a noun is produced, which can be the object (or subject) of this predicate. *kx'oo-xo* (eat [meat] + *xo*), the term of a functional class described in the third section, is an example of such derivative [8]. Likewise, *!nāã-xo* denotes things which will cause a disease if consumed, or, more simply, things not to be eaten. It is to be emphasized that *!nāã-xo* does not mean "poisonous thing" in general, but only something harmful to somebody specific. Thus in the actual context of Gui/ Gana social life it must always be specified *whose !nāã-xo* this meat is.

Table 5. Age-sex composition of the participants in the inquiry on food avoidance.

Age/Sex	Male	Female	Total
Old	8	11	19
Middle-aged	8	10	18
Adult	10	14	24
Young adult	13	16	29
Adolescent	4	2	6
Total	43	53	96

Table 6. Animals most people would eat.

Category	English name	Male (43)		Female (53)
kx'ooxo	giraffe	100.0	%	100.0
	eland	100.0		100.0
	gemsbok	100.0		100.0
	wildebeest	100.0		96.2
	red hartebeest	100.0		86.8
	kudu	100.0		100.0
	springbok	100.0		100.0
khàu	bush duiker	100.0		100.0
	steenbok	97.7		92.4

II. General Tendency of Avoidance

The following analysis is based on systematic interviews of 96 persons (Table 5). Animals included in the category of either *khàu* or *kx'ooxo* (in the narrow sense) are only rarely tabooed (Table 6). All of the 43 men questioned claimed that they would eat all seven species of big game (*kx'ooxo*) and also bush duiker, while only one old man had avoided steenbok from his youth onward. Although most of the 53 women claimed that they would eat *kx'ooxo* and *khàu* animals, several younger women maintained that they avoided red hartebeest and steenbok. These negative responses may reflect a special taboo which young wives as well as adolescent girls have to obey (see below).

On the other hand, there are a number of animals which most people avoid or even hate to eat (Table 7). As was pointed out by Tanaka, possible man-eaters like lion, lycaon, and spotted hyena, are abhorred by everybody. It should be noted however that the latter two species are so rare in this area that most people have little opportunity to even encounter them. The zorilla (polecat) is such a bad-smelling animal that the reason for the abhorrence is easy to imagine. Although in

Table 7. Animals most people would not eat

Category	English name	Male (43)	Female (53)
nii- kòa	lion	1	0
	zorilla	0	0
	lycaon	0	0
	spotted hyena	1	0
goõwahaxo	rats and mice	0	0
qx'áo	monitor lizard	1	0
	python	0	0
	puff adder	0	0
	black mamba	0	0

Figures indicate the number of persons who had eaten each animal.

the Central Kalahari there are sporadic plagues of mice (Tanaka, personal com.), people never intend to eat them. All but one man decisively rejected monitor lizards, pythons, and two species of quite dangerous snakes as possible food, but this result needs to be taken with a grain of salt. During his first research Tanaka observed several elder men eating boiled python meat (Tanaka, personal com.). Furthermore, my informants told me that an old Gui woman had eaten a large nonpoisonous snake, *gòõ*, probably a mole snake, in a year of severe drought. However, when I inquired further, the woman in question claimed that she had never eaten any snake. Thus it is quite probable that the actual food choice is more flexible than the people are willing to admit.

III. Taboos Imposed on Girls and Young Women

As was pointed out by Tanaka, puberty and pregnancy are critical life stages in which many strict food taboos are imposed. My investigation, though preliminarily, showed that from puberty onwards young women were forbidden to eat various kinds of meat. However, most of the accounts concerning this aspect of taboo were given by male informants, and I could not make inquiries with a sufficient number of girls and young wives.

Through her investigation into the Gui/ Gana rituals, Imamura thoroughly elucidated the food taboos imposed on women (Imamura, this volume). According to her article, a girl around menarche is forbidden to eat kudu and duiker. After the menarche this taboo will be waived (though there is no specific ritual), but from now on she will be deprived of five other species; steenbok, gemsbok, hartebeest, porcupine, and springhare. Specific rituals must be carried out in order to break the abstinence from these five species.

It has to be noted that three of the above mentioned five species are of special importance in the Gui/ Gana diet; gemsbok is the most frequent big game, steenbok is the most frequent game caught in snares, and springhare is also a frequent game, caught with a special tool and technique. Thus the strict taboos on these animals may probably lead to a decrease in protein intake among the adolescent girls and young mothers. From an ecological point of view, it might be worth challenging an explanation that looks for the raison d'être of these taboos in terms of 'survival advantages' or 'inclusive fitness' for those women who observe them. However, such a task is beyond the scope of this paper.

IV. Taboos Determined by Age

In the following analysis I shall use the abbreviated term 'eating rate,' which indicates the ratio of the number of people who gave a positive response to my question as to whether they were eating a specific animal, to the total number of people included in each age grade. This 'eating rate' is calculated as the proportional number of positive respondents in an age grade consisting of 10 persons.

Privileged enjoyment of some kinds of meat by elder people is the most principal factor that organizes the Gui/ Gana's food taboos. Therefore the category of *sumo*, namely meat only for the elderly and infants, deserves special attention. Typical members of this category are the pangolin (scaly anteater), kori bustard, black korhaan, leopard tortoise, and the Kalahari tent tortoise. The eating rate graphs for these five species show strikingly similar patterns, irrespective of the sex of the respondents. That is, the proportion of those eating these species sharply increases in higher age grades, though the female values are generally lower than the male ones (Fig. 2).

Some inconsistency in people's definition of "What is *sumo*?" remains though. While the above five species are all regarded as *sumo* without any reservation, some people claim that ostrich and genet are also to be considered as *sumo*. However, the eating rate graphs for these two species show quite different patterns from those for the typical members of this category. Most men will eat ostrich, irrespective of their age, while younger women show a slight tendency to avoid it (right bottom in Fig. 2). As will be described below, the eating rate for genet does not correlate with the age and shows a pattern commonly found for carnivores (right bottom in Fig. 5). This result suggests that *sumo* may be regarded as a "radial category" which includes both central members, or prototypes, and peripheral members (Lakoff, 1987).

The investigation of male life histories provided evidence that kori bustard is a prototype of *sumo*. Until about 50 years ago, the Gui used to sporadically hold their male initiation ceremony during the *bǎra* (harvest season; approximately from February to April) of especially rich years. This ceremony was called *!nhoro-xa*. According to Nakagawa's lexeme analysis (pers.com.), *!nhoro* means 'crest of the kori bustard,' and *-xa* is a derivative morpheme following a noun, meaning 'possessing the features of the preceding noun.' Thus the name of this ceremony means 'having a crest.' When taking an adolescent man to the ceremony, an elder

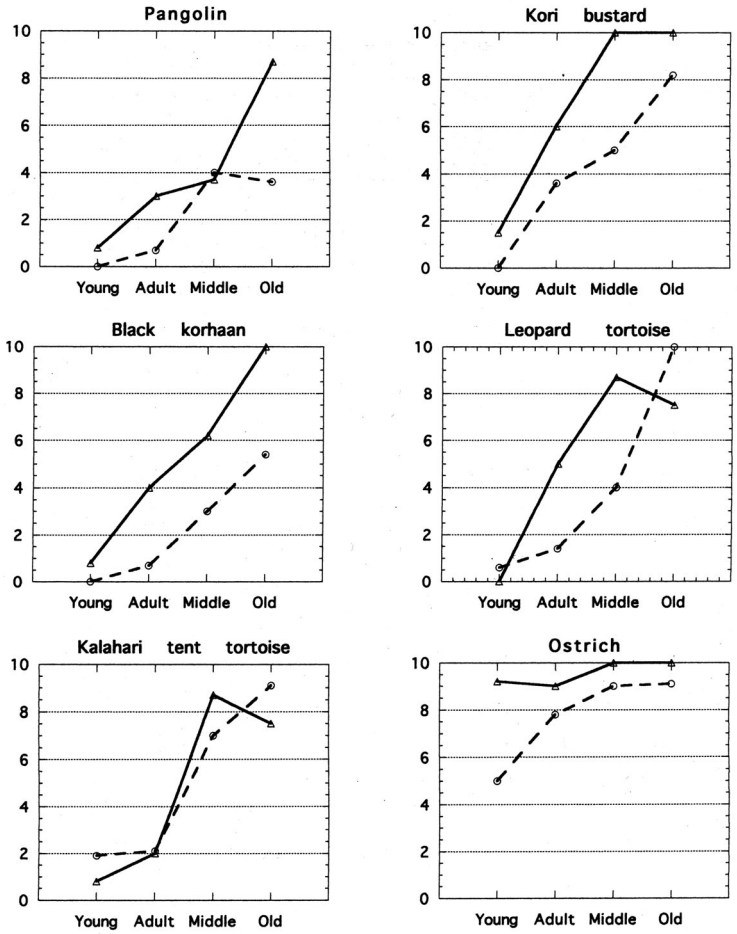

Fig. 2. Eating rate of each age-sex class for the category of *sumo* (meat for elders and infants). Solid lines and broken lines respectively indicate males and females. The graph for the ostrich is clearly different from the other animals.

man usually told him, " *kèẽ da kx'aoko siwa kāã*," literally, "Please let me put you into masculinity." The novices were confined to an isolated camp for about a month to be disciplined and inculcated with a 'good sense' for seeing things. The most important aspect of this 'good sense' was to understand complicated regulations concerning animal meat. The novices were tattooed on their foreheads, while the senior participants frequently made sounds with a bull-roarer in order to call the god (*gama*) from the sky.

When collecting life histories, I heard about the unexpected use of bull-roarers in contexts other than rituals. At the time when *!nhoro-xa* was still practiced, most men were unwilling to eat kori bustard before reaching middle age. But one

day a middle-aged man found one caught in his snare and decided to eat it. On the way home, he roasted the whole bird in ashes and hung it on a high *Acacia* tree not far away from the camp. Coming home, he gave his wife and children the plant food he had gathered, but said nothing about the kori bustard. At midnight, he secretly took a bull-roarer from a bag and went out, pretending to go to the toilet. Under the tree he made a small fire and made sounds with the bull-roarer. Old men in the camp, hearing the sound, said, "*EHEI!* That is calling me." In the darkness, they ran to the place, gathered around the fire and enjoyed the *sumo*. A similar procedure was also followed when middle-aged men obtained delicacies such as honey, ostrich eggs, and aardwolf, in a very rich season. Thus revolving the bull-roarer was not only a symbolic device to call the god from the sky, but also a means of "tele-communication" used by elder men in order to monopolize rare delicacies.

V. Difference between the Sexes and Variation among Males

For the category of *xáa- kòa* (small meat), which includes porcupine, springhare, and cape hare, there is a consistent difference in the eating rate of both sexes. The rates are generally high among males of all age grades, while they increase according to age among females. This pattern of male-female difference repeatedly appears for various species, including the ostrich as described above. The eating rates for aardvark (*kx'ooxo- óbi*; another *kx'ooxo*) and warthog (*khàu- gôo-bi* ; senior *khàu*) also show this pattern (Fig. 3).

The most striking characteristic of the Gui/ Gana food avoidance is that a distinctive difference between the sexes is found in the eating rate for the species of the *nii- kòa* category, which approximately corresponds to the biological taxon of carnivore. However, several species of carnivore have to be excluded from the following analysis. As has been pointed out above, lions, lycaons, spotted hyenas, and zorillas are abhorred by all people. On the contrary, most people, irrespective of sex or age, are very fond of the fat meat of the bat-eared fox. The meat of the aardwolf is also regarded as being so fat and delicious that most men like it, while the women's eating rate for it correlates with age, showing the same pattern of eating rate as *xáa- kòa* above (Fig. 4).

For the remaining 12 species of *nii- kòa*, there is a conspicuous male-female difference in eating rate. All women except those in the eldest grade consistently avoid them, while the men's eating rates show complicated patterns which seldom correlate with age (Fig. 5, 6). These complicated patterns are due to a wide variation of the males' accounts of what animal to avoid. The 12 species can be ranked according to the rate of avoidance (Table 8). In order to elucidate the variation in avoidance, the analysis was focused on 23 males who avoid a relatively small number of *nii- kòa* species, namely five or less. Strikingly, only two pairs (four men) avoided the same combination of animals; one pair avoided only ratel, while another avoided ratel, brown hyena, leopard, and jackal. The remaining 19 men each had their own unique list of *!nāã̄-xo* (thing not to be eaten). Thus the male avoidance of *nii- kòa* animals stands in a sharp contrast to that of *sumo*,

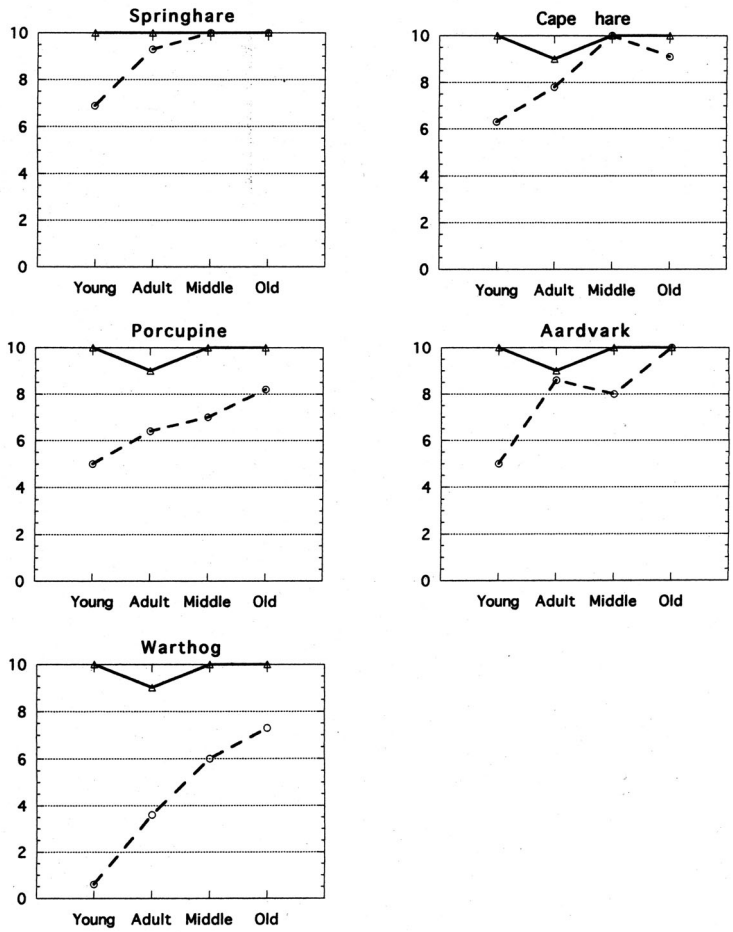

Fig. 3. Eating rate of each age-sex class for the categories of *xáa- kòa* (little meat), *kx'ooxo óbi* (another *kx'ooxo*, i.e. aardvark), and *khàu- gôo-bi* (senior *khàu*, i.e. warthog).

as the decision to eat or not depends not on communal norm, but on individual choice (Fig. 7). Does the variation among males merely reflect diverse tastes and capricious choice? Or is each man motivated to differentiate himself from others by food avoidance? There is no data available to answer these question.

Such a distinct male-female difference in the avoidance of *nii- kòa* may partly be ascribed to the opportunity to encounter these animals. Only male hunters have chances to catch *nii- kòa* animals, sometimes even incidentally, with snares or dogs, so that they can also decide whether the killed animal is to be eaten or not. On the other hand, women rarely have the chance to overstep the uniform judgement that *nii- kòa* cannot be eaten.

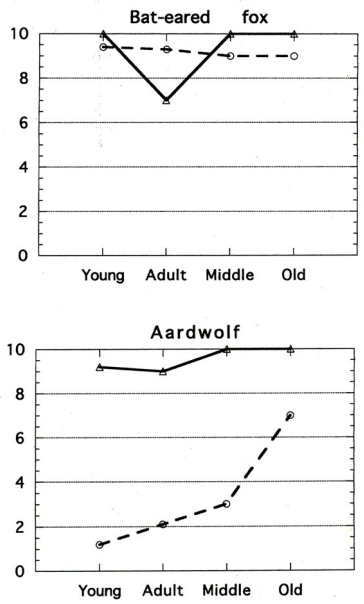

Fig. 4. Eating rate of each age-sex class for the two species of carnivores, bat-eared fox and aardwolf, which are frequently eaten.

As was described in the introductory section, a woman' s death, said to be caused by the absorption of a leopard's smell, inspired me to start this investigation. The above analysis revealed that, of all the 12 species of *nii- kòa* animals, only the leopard and the slender mongoose are avoided by every woman (Fig. 5). This point hints at the women's profound fear of these animals. Similarly, the consistent tendency that women avoid more kinds of animal meat than men is assumed to derive from some emotional/ideological background, which I would like to designate as "the female body's vulnerability" to the animals in the bush. Are women considered to be more vulnerable to game animals because they do not hunt? Or is "the female body's vulnerability" a primary cause for the division of labor between the sexes, that allocates the hunting activity to men? This is a chicken-and-egg question difficult to answer.

VI. Devices to Overcome the Food Taboo

The rituals of overcoming the food taboos for girls and young wives, who have been forbidden eating five species of animals, are described in detail by Imamura. In this section, I shall concentrate my attention on adolescent and young adult males and their beliefs and practices concerning ways of overcoming the taboo against eating *sumo*.

The taboo against *sumo* is sometimes waived in an ad hoc way. For example, if a young adult hunter catches a kori bustard in his snare, he would usually give

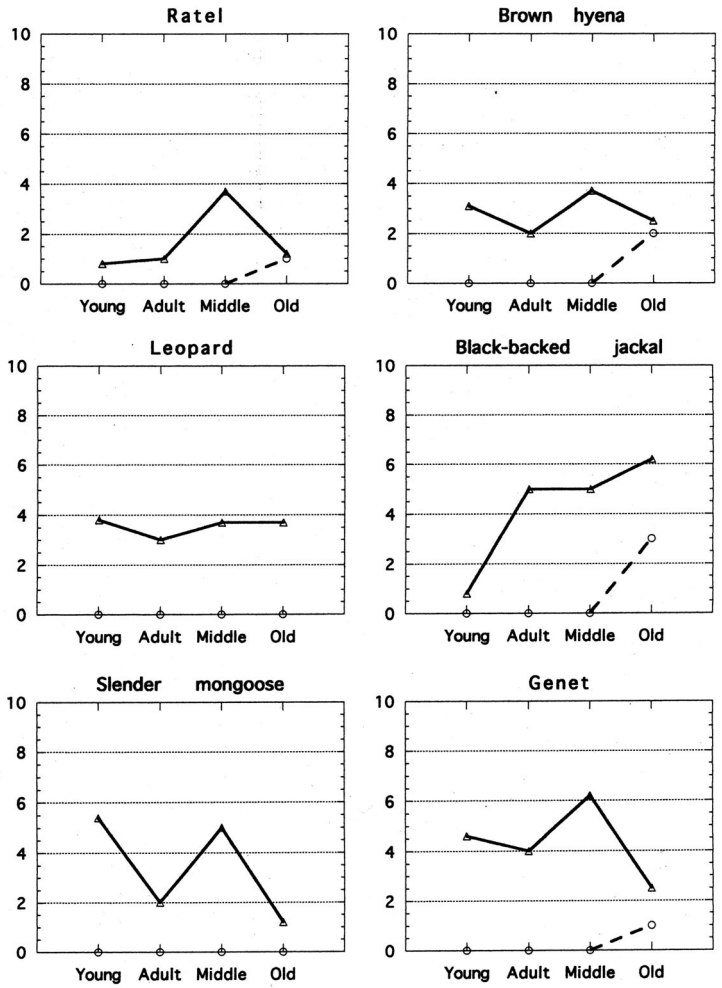

Fig. 5. Eating rate of each age-sex class for the category of *nii- òa*, which approximately corresponds to carnivores [1]. The graphs are arranged from the upper left to the lower right, starting with the highest degree of avoidance by males.

it to his senior kinsmen in his camp. However, if there is only one elder man in the camp, the meat may be too much for him to consume. In such a situation, both men will share the meat, and the elder will 'cure' the younger hunter, who might be the elder's son or son-in-law, by cutting him on the belly and rubbing some medicine into the wound. This type of curing is called *qx'are ò*. Roots of a broadleaved tree called *xamts'a* (*Lonchocarpus nelsii*) are often used as medicine in this context.

In the preceding section, I pointed out that *sumo* is a radial category, which includes peripheral members. Thus not only the meat of specific animal species,

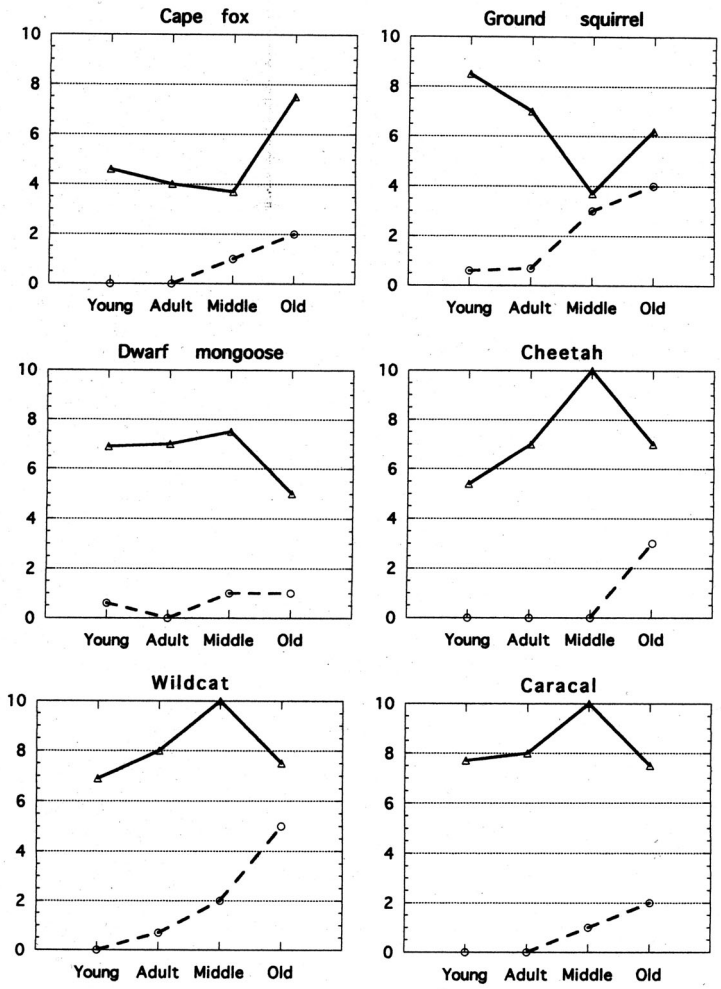

Fig. 6. Eating rate of each age-sex class for the category of *nii- kòa*, which approximately corresponds to carnivores [2]. The graphs are arranged from the upper left to the lower right, starting with the highest degree of avoidance by males.

but also various parts of the body of game are regarded as *sumo*. Infants of big game (*kx'ooxo*) or of duiker are also avoided by young men. On the other hand, their attitude toward *!nāã-xo*, far from a faithful obedience to the norm, is characterized by some kind of "challenging" stance. I could not understand this aspect of taboo until I analyzed an occasion of conversation among a number of adolescent men sitting around a pot of infant duiker.

Adolescent men always seek a chance to begin eating forbidden meat. They are, of course, afraid of disease caused by a violation of the taboo. However, there are various devices to avert the danger of disease. Suppose that two adolescent men of

Table 8. The degree of avoidance of animals of the 'carnivore' category (*nii- kòa)*

English name	Males who eat		Rank of Avoid.	Females who eat	
aardwolf	40	(93.0)	14	10	(19.2)
bat-eared fox	39	(90.7)	13	45	(86.5)
caracal	35	(81.4)	12	3	(5.8)
wildcat	34	(79.1)	11	6	(11.5)
cheetah	30	(69.8)	10	3	(5.8)
dwarf mongoose	30	(69.8)	9	1	(1.9)
ground squirrel*	29	(67.4)	8	6	(11.5)
cape fox	21	(48.8)	7	3	(5.8)
common genet	19	(44.2)	6	1	(1.9)
slender mongoose	18	(41.9)	5	0	(0.0)
black-backed jackal	16	(37.2)	4	3	(5.8)
leopard	14	(32.6)	3	0	(0.0)
brown hyena	9	(20.9)	2	2	(3.8)
ratel	5	(11.6)	1	1	(1.9)

* This animal is, biologically speaking, no carnivore.

close kin, P and Q, are sitting near a pot of their common *!nāã-xo*. P, deciding to eat it, will hastily consume it and then upset the pot, orienting its mouth toward Q. Doing so, P won't suffer from sickness, while Q will be attacked by diarrhea — because Q's body *is effected by* (*!năre*) the fact that P ate their *!nāã-xo*. Similarly, if P chews a particular stick of medicine or mixes medicine with the *!nāã-xo* before eating it, the same effect is expected.

The core of this kind of belief is expressed by the transitive verb *!năre*, which was tentatively translated as "be effected by" in the above text. However, the semantic field centering around this term is quite complicated. Let us examine the following sentences, where *sfx* indicates a suffix denoting gender and case;

(1) *abi ue-m kam ka khāri-ma !năre* (he all-of [the] day when alcohol-*sfx* be-drunk)
He is drunk every day.

(2) *sáka găekosi usi tsa !năre, gyìo nhoã à* (your wife will you anticipate, burn armpit due-to)
Your wife will anticipate you [your arrival] when her armpit is itching.

(3) *!gáẽ-bi khôe-m tsŭu-sa !năre* (steenbok-*sfx* man-'s feces-*sfx* sense)
The steenbok senses human feces.

(4) *!nabi-muka kx'am-si aba-ma !năre ya khĭi* (adze-'s edge dog-*sfx* sense and refuse)
The edge of an adze senses a dog and refuses [to cut].

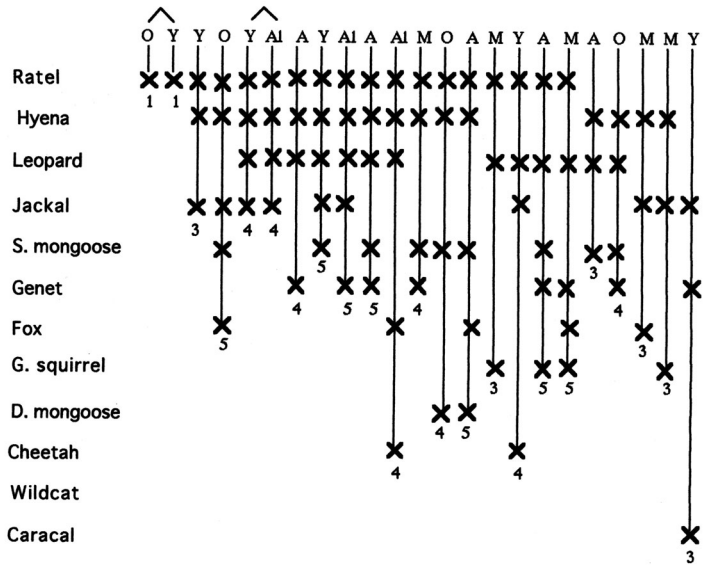

Fig. 7. Variation among 23 men in the avoidance of eating *nii- kòa* animals. Twelve species are arranged from the top to the bottom according to the degree of avoidance by males. Each vertical line indicates a combination of meat avoided by one man. Figures at the bottom of each line indicate the number of avoided species. Letters above the lines indicate the age grades; O: old, M: middle-aged, A: adult, Y: young adult, and Al: adolescent.

Sentence (1) represents the most frequent use of this verb in everyday language. Here it means "to be drunk" or "to be intoxicated." Not only humans but also animals may be drunk. A steenbok wandering around in a moonlight night is interpreted as "being intoxicated with the moon" (*nóe-sa !năre*). The context of sentence (2) is derived from the private life of the anthropologist. When the day of my leaving Xade was drawing near, my informants told me that my wife in Japan, her armpit itching, had a hunch that I would come back soon. Similarly, when one's belly growls, this incident is expressed as "my intestine anticipates [something]" (*cika kăbe-bi !năre*), interpreting it as a hunch that, for example, a kinsman will come back with meat of game caught in a snare.

The context of sentence (3) is more complicated. Suppose that the two men R and S are living together in a camp. Although many steenboks have been caught in R's snare, he has not given any meat to S, who is therefore frustrated. One day, S secretly picks up a piece of the steenbok bones scattered around and goes out of the camp to excrete on it. Like this, steenboks will never enter R's snare again, since they "sense human feces." Finally, sentence (4) is related to the work of skin processing. With a hatchet a man scrapes fat flakes off the skin. If dogs are gathering around his workshop to eat the flakes, he tries to drive them away. If men collect the flakes to eat, there is no problem. However, if the hatchet senses

that its product is eaten by dogs, it becomes so dissatisfied that it refuses to work. In consequence, its edge becomes dull.

As seen above, the semantic field centering around the verb *!năre* represents invisible networks of some kinds of influences, which affect not only the human social world but also the world of animals and even tools. I shall return to this point in the final section.

DISCUSSION

The significance of deictic cognition has been pointed out at the end of the fifth section. I walked around with my informants and was told the vernacular names of the birds we encountered. Here both me and the informants perceived the same object at which we could point. Forming the ground on which all human struggles for survival are based, deictic cognition can ultimately be confirmed by the tactile sensation that allows us to hold a weapon, food, and a partner. The most critical aspect of deictic cognition is embodied in the activity of noticing. When I was analyzing a recorded sample of a narrative with an informant, he sometimes went out of the hut to see what caused the alarming call of a bird. One day, in fact, noticing a curious tone in the song of a Kalahari robin, he found a cobra hiding in a shrub near a hut and killed it. With one's attention being aroused by birdsongs, one can defend oneself against approaching *paaxo* animals. Here one is acting according to prospective intention connected with deictic cognition. Hunting is also an activity primarily composed of a chain of prospective intentions, backed up by deictic cognition.

The above argument is also true for animals. For this reason, the song of the scalyfeathered finch, telling man about an approaching lion, also helps a gemsbok to notice a hunter come near. On the other hand, most indirect cognition is achieved through the medium of signs, such as language. In other words, the objects of this type of cognition are largely "representations" in a sense proposed by D. Sperber's "epidemiology of representation" (Sperber, 1996). Suppose that a visitor from a distant camp brings the news of my uncle's death. I will arrive there only after the burial. As far as I will never touch his cold body, his death is cognized by me only indirectly. However, it is still an undoubted *fact*, which I know because I am tightly bound into a network of intersubjective cognition constructed by those who deicticly perceived his death.

However, in human cognitive space, indirect and deictic cognitions don't remain separated from each other. After a hunter is astonished by some strange behavior or appearance of, say, a pangolin or an aardvark, he comes home to hear the news of someone's death. At this moment, he projects retrospective intention toward that uncanny matter. Another important point is that *ziu* is recognized only when the death of a person is known indirectly. Thus the phrase of "telling an omen" (*ziu-sa kăe*) embodies a way in which indirect cognition is connected with deictic cognition through retrospective intention.

On the other hand, 'noticing' something at the present moment can be connected with indirect cognition by both prospective and retrospective intention. For this

point, birds' messages are of critical importance. Some messages have the effect of modifying the hunter's behavior; e.g., going to check one's snare, abandoning the work of setting snares, noticing vultures or *paaxo* animals, etc. Here, deictic cognition, backed up with prospective intention, is connected with indirect cognition, by which the goal of his intended act is adapted.

Folk-tales or myths are the most typical cultural representations in which the behavior of animal characters can be cognized only indirectly, namely by the medium of language signs. However, distinctive features perceived in the present incessantly revitalize retrospective imagination toward the mythical age. The point is that both deictic and indirect cognition reinforce each other. To notice the conspicuous behavior of a bird reminds one of a relevant myth, while holding a cultural representation relevant to the interpretation of such a behavior may sharpen the ability to notice. Even I, a non- Gui/ Gana observer, could identify the call of a guineafowl by recollecting the myth about this bird (Fig. 8).

How, then, is food avoidance or taboo to be positioned in this scheme? I have argued that deictic cognition ultimately leads to tactile sensation. Unless we do not hold food in our hands, we cannot survive. However, what will occur after we put it into our mouth? This question throws light on the unique nature of the most fundamental locus of cognition, our body. Here, I remember some bitter experience. In 1994, an old man "cured" (*qx'are ò*) his daughter-in-law, a married woman of about thirty years, by cutting her thigh and rubbing medicine into the wound. This was the preparation for her to be able to eat *sumo*, pounded kudu meat mixed with its marrow. I was also served with this *sumo*, agreeing with the people that I didn't need to receive the treatment because my beard was already white. How delicious it was! On the next day, I thrashed about with the worst diarrhea I had ever experienced. Although my pain is immediately present to me, I cannot point at it deicticly. Of course, my pale face or the greasy sweat on my forehead can be positioned as symptoms of pain, in the tight network of intersubjective cognition by the people, but it is not the pain itself. More generally, after eating food or drinking water, one can feel the process of ingestion. However, one cannot point at this feeling itself or "show" it to others. In sum, as soon as food is ingested, deictic cognition is not possible any more for the process which has got underway within the body.

All processes within the body or ideas concerning the causation of "sickness," whether they belong to me or to other persons, can only be the object of indirect cognition or representation. However, neither the ingestion into the body nor the alteration of the body resulting from it can be regarded as representation. They may be designated as "immediate experience," as they are of immediate presence to myself. Grammatically, the nature of immediate experience is expressed by the 'first person/present tense.' Most simply, ingestion into the body or alteration of the body, spoken of in the first person/present tense, can be projected into both directions of prospective and retrospective intention, to be connected with the same alteration or ingestion spoken of in the past or future tense. I am suffering from diarrhea now (alteration of the body at present) because (retrospectively) I ate *sumo* (ingestion into the body) yesterday. Or, if I drink too much (ingestion), I (prospectively) will be badly drunk (alteration).

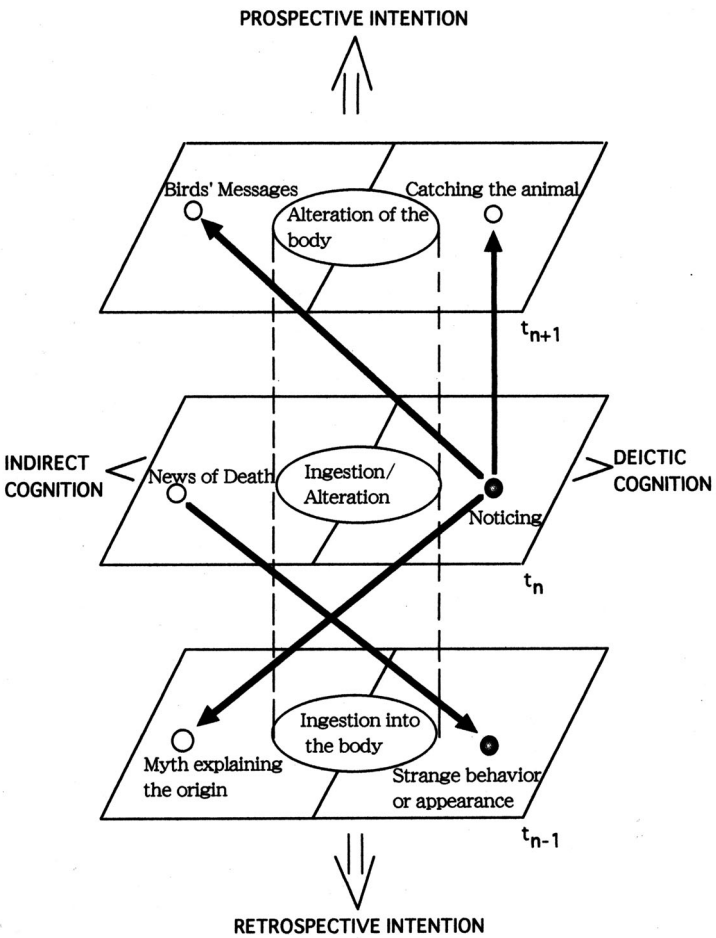

Fig. 8. Theoretical model of the cognitive space covering the Gui/ Gana's habitual thought and practice toward animals.

Now we can reconsider the peculiar semantic field of the term *!năre* (be drunk / sense / hunch). This field represents pathways through which a first person's experiences are connected with the acts of a second and a third person. My armpit itches because it has a hunch that my wife will come back. I am suffering from diarrhea because my body senses that you (my close kin) have eaten forbidden meat, etc. Moreover, the class of agents to be drunk, sense, or have a hunch is extended to include animals and tools. In this way, in the Gui/ Gana cognitive space, the fusion of deictic and indirect cognition produces peculiar representations concerning a kind of cognition which may be called extrasensory. However, it is not accurate to liken these representations to our folk knowledge about "telepathy."

While telepathy is essentially based on the dichotomy of mind and body, the representations centered around *!năre* are restricted to the communication between bodies (including things), which operates through such immediate experiences as eating, a growling belly, itching, and excreting.

Although this paper described food taboo and avoidance in some detail, I did not try to provide a consistent explanation of many intricate problems like: Why are young wives deprived of the meat of animals that are most frequently caught? Why is the kori bustard the most dangerous *sumo*? Why do women mostly avoid carnivorous animals, while men's choice of these animals is quite variable? — and so on. It may be tempting to apply an ecological explanation to the first question, or a structuralist analysis to the last [9].

However, I am skeptical about the validity of any single grand theory said to explain a whole range of indigenous thought. Rather, I attempted to give a phenomenological description of the *habitus* as it is lived by the Gui/ Gana people. This investigation shows that the 'noticing' of animals is closely interwoven with various kinds of beliefs and interpretations. This term 'notice' surely corresponds to the Gui term *!qaõ*, which was translated as "good sense" when describing the male initiation ceremony of the past. It also means "to be careful" in another context. The elders who had participated in the ceremony stated that the primary purpose of this ceremony was to inculcate the novices with *!qaõ-zi* (plural form). This statement suggests that paying attention to the natural environment as well as 'noticing' minute changes in it, forms a cognitive foundation which makes the survival of hunter-gatherers possible.

According to the theory proposed by D. Sperber, the information collected by incessantly paying attention to the natural environment is subject to a "conceptual device," while various beliefs, interpretations, and myth about animals should be processed by some "symbolic device" (Sperber, 1985). However, I am also skeptical about the validity of this dichotomy [10], since, as was pointed out above, deictic and indirect cognition reinforce each other. On the other hand, from an ethological point of view, Blurton Jones and Konner give so little weight to the !Kung "nonrational beliefs" that they conclude that "[t]hey [nonrational beliefs; note of the present author] seem to exist in a domain of the mind quite separate from ethno-ethological knowledge" (Blurton Jones & Konner, 1976: 344). Much of the evidence presented in this article goes against this conclusion.

In the fourth and fifth sections, I assumed that scientific thought might be incompatible with at least some of the Gui/ Gana's habitual thought about animals, e.g., that the flying of a redcrested korhaan is an undoubted indexical sign of the failure in snare hunting. But this assumption does not lead to the cultural relativism which is willing to deny the validity of the attempt to explain the hunter-gatherers' habitual thought in terms of adaptive value. Let me use the metaphor of a "cognitive screen," which is extended above the base of the *habitus* of a people. As for the Gui and Gana, their *habitus* is generated from the most primary daily activity, namely walking around in the bush. Their cognitive screen consists of an infinite number of "scanning lines," ranging from jinxes to myths. The beliefs that the strange behavior of an animal is an omen or that man and animal influence each other through extrasensory channels, would increase the density of these

lines. If we are to understand the habitual thought of hunter-gatherers in terms of adaptive value or, more broadly, of their struggle for survival, we have to think of this value as an increase in the density of scanning lines to such a degree that an elaborate image of the environment emerges on the screen.

If we adhere to the simple view that only empirically "correct" knowledge is advantageous to the human foragers' survival, we have to expel other kinds of "beliefs" and "thoughts" into the residual category labelled "redundancy." However, in the discipline of information technology, redundancy itself is said to increase both the predictability and the stability of communication systems (Bateson, 1972). I would like to conclude this investigation by underlining the above characterization of "redundancy." It is one of the most conspicuous features of human cognition, evolved over millions of years of hunting-gathering life, that it has developed stable mental mappings of the natural environment by interweaving empirical observations with —only seemingly— "redundant" images and representations.

NOTES

(1) An example of indirect cognition which does not depend on language is the cognition of some image or some association evoked by music. Dreams provide a marginal case. In the middle of a dream, events and objects are directly perceived, even though this perception corresponds to nothing in the deictically perceived world. However, if one hopes to convey the content of this perception to others, there is no way but having recourse to language.

(2) Tanaka's notation ‘ Kade' or Silberbauer's ‘ xade' for the name of the research area are linguistically incorrect. Although the correct notation should be '!q'are' [Nakagawa n.d.], in this article I adopts the notation 'Xade' for the study area, taking into consideration its prevalence in maps, official documents, and popular writing both within and outside Botswana.

(3) The notation of the click consonants in this paper follows the orthography which was established by H. Nakagawa (1996).

(4) As the Gui/ Gana language has only three numeral morphemes, i. e. one (*kui*), two (*kâm)*, and three (*!nōna* for Gui; *ōna* for Gana), four or more numbers are indicated by the adjective 'many' (*kúi*). Although the men of the younger generation responded to my question using English numerals, the elder men could not tell the accurate number of animals they had killed. Thus, regardless of the exact answers in English numerals, I substituted 'four' for all the numbers above three.

(5) These people were employed by the wildlife department to slash a firebreak belt through the undergrowth, and were on the way to their place of work.

(6) Examples with the same number but distinguished by letters describe the same bird species.

(7) As is suggested in cases (20) and (28), small and slender objects such as awl and pipe are apt to be lost in the sand. These discourses vividly depict a bother familiar to all the Gui and Gana.

(8) On the other hand, *paaxo* (bite-thing) is the subject of the predicate.

(9) Giving a brief comment on the latter possibility, some *nii- kòa* animals can be classified into pairs of similar morphology, but different degree of avoidance; strongly avoided vs. favored by many. These pairs are brown hyena (20.9) /aardwolf (90.7),

leopard (32.6)/cheetah (69.8), jackal (37.2)/bat-eared fox (93.0), and slender mongoose (41.9)/dwarf mongoose (69.8). The figures in parentheses indicate the percentage of men who will eat each species. This point may reflect the mental tendency to divide the world into a marked/unmarked dichotomy.

(10) In a broader context, G. Sammuel also criticizes the dichotomy of rationality and symbolism proposed by Sperber (Samuel, 1990).

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